

AGENDA
TC 7.6 Building Energy Performance
Monitoring and Energy Performance Subcommittee
2021 ASHRAE Annual Conference, Virtual
Thursday, June 17, 2020, 12:00 – 2:00 pm

Purpose: TC 7.6 is concerned with the estimation, measurement, analysis, benchmarking, and management of whole building and building systems energy and water performance. This includes performance and resource management of new and existing buildings. This sub-committee implements this scope by monitoring the state of governmental policy, data, and tools addressing building energy and water performance (especially building benchmarking and energy auditing), and by developing ASHRAE programs and courses on these topics.

1. Introductions

2. ASHRAE Standards and Guidelines

- a. **Standard 100-2018**, *Energy Efficiency in Existing Buildings* – EUI target update to 2012 CBECS to be completed soon; EUIs targets will likely change for many building types.
- b. **Standard 105-2014**, *Expressing and Comparing Building Energy Performance and Greenhouse Gas Emissions* – Out for publication
- c. **Standard 211-2018**, *Standard for Commercial Building Energy Audits* – Considering possible updates
- d. **Standard 189.1**, *Standard for the Design of High-Performance Green Buildings Except Low-Rise Residential Buildings* – Developing new compliance paths via performance method
- e. **Standard 228P**, *Standard Method of Evaluating Zero Energy Building Performance* – Concluding response to first set of comments
- f. **Guideline 14-2014**, *Measurement for Energy, Demand, and Water Savings* – Aiming for 2022 publication
- g. **Guideline 34-2019**, *Energy Guideline for Historic Buildings*
- h. **AEDG, Achieving Zero Energy series**

3. Project Announcements and Updates

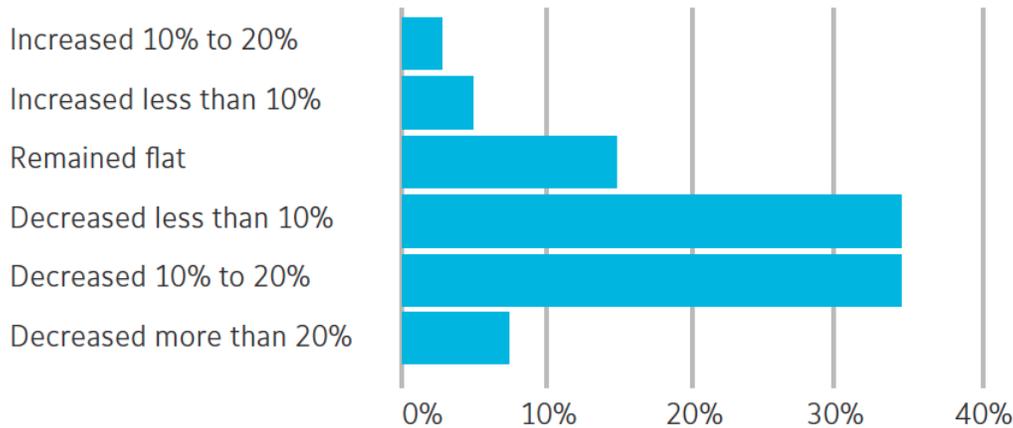
- a. ASHRAE Building Decarbonization Task Force, Building Performance Standards Working Group (Hinge)
 - i. Working Group scope on ASHRAE Decarbonization Task Force website: www.ashrae.org/decarb
- b. BuildingEQ and standardized system-level key performance indicators for building performance evaluation (Hunn)
 - i. LBNL paper: https://eta-publications.lbl.gov/sites/default/files/system-level_key_performance_indicators.pdf
- c. Proposal to update ASHRAE Performance Measurement Protocol (PMP) into an ASHRAE Guideline (Kim and Hunn) – Awaiting approval as a GPC

4. Buildings, Energy, and COVID-19

- a. U.S. energy consumption fell by a record 7% in 2020, with a 7% decline in the commercial sector and a 1% decrease in residential sector (largely due to warm year): <https://www.eia.gov/todayinenergy/detail.php?id=47397>
- b. Less than 10% of facilities experienced an energy use reduction of greater than 20% during COVID-19, despite greatly reduced occupancy: <https://www.johnsoncontrols.com/-/media/jci/insights/2020/feature->

[story/files/hq2010004_eei-2020-media-one-page-summary-v3.pdf?la=en&hash=086EF3E7B0EB35082A6F7213B4FFF24178B65BF2](https://www.eia.gov/energyexplained/energy_use/energy_use_story/files/hq2010004_eei-2020-media-one-page-summary-v3.pdf?la=en&hash=086EF3E7B0EB35082A6F7213B4FFF24178B65BF2)

How facility energy use changed during the COVID-19 pandemic



- c. GBA hospital energy and water benchmarking survey: <https://grummanbutkus.com/why-we-excel/hospital-energy-water-survey>
- d. Average electricity prices in Texas increased in February 2021 due to severe winter storm; doubled for commercial and industrial sectors, and up 7% in residential sector: <https://www.eia.gov/todayinenergy/detail.php?id=47876>

5. Governmental Policy

a. Municipal

- i. In April 2021, Montgomery County, Maryland introduced BEPS legislation to its City Council. Key features: uses normalized site EUI as performance metric; takes a “trajectory approach” with both short- and long-term performance goals : <https://www.montgomerycountymd.gov/green/energy/beps.html>.
 - 1. For more on the process of adopting BEPS in Montgomery County: <https://www.imt.org/behind-the-scenes-montgomery-countys-journey-to-building-energy-performance-standards/>
- ii. IMT has developed several BEPS resources, including:
 - 1. Comparison matrix: <https://www.imt.org/resources/comparison-of-u-s-building-performance-standards/>
 - 2. Model ordinance: <https://www.imt.org/resources/model-ordinance-for-building-performance-standards/>
 - 3. BEPS resources: <https://www.imt.org/how-we-drive-demand/building-policies-and-programs/exploring-building-performance-standards/>
- iii. Several sessions on BEPS at upcoming National Energy Codes Conference: <https://www.energycodes.gov/2021-national-energy-codes-conference>
- iv. IMT released an updated comparison of audit, tune-up, and retrocommissioning policies: <https://www.buildingrating.org/document/comparison-us-building-audit-tune-ups-and-retrocommissioning-policies>
- v. In 2020, Minneapolis, MN began requiring time-of-sale energy disclosure for single family homes, based on a 0-100 score. Results are publicly accessible: <https://www.mncee.org/minneapolis-energy-disclosure?find-energy-scores>
 - 1. Portland, OR also does this: <https://www.portland.gov/pdxhes>

- b. State
 - i. In March 2021, Massachusetts passed a climate bill that includes developing a stretch energy code for net zero energy buildings: <https://www.aceee.org/press-release/2021/03/massachusetts-steps-energy-saving-policies-major-climate-law>
 - ii. In May 2021 California Public Utilities Commission changed its approach to setting energy efficiency goals, moving away from kWh and kW savings and forward a “total system benefit metric” that targets high value load reduction: <https://www.aceee.org/blog-post/2021/06/climate-forward-efficiency-efforts-utility-customers-advance-three-states>
 - 1. CPUC also valuing refrigerant retirement similar to how it values energy efficiency. For perspective: <https://www.kw-engineering.com/align-california-energy-policy-efficiency-incentives-refrigerant-retrofits-ghg-reduction-hfc-phaseout/>
- c. U.S. Federal
 - i. In May 2021, the White House announced it will develop a BEPS for federal buildings: <https://www.whitehouse.gov/briefing-room/statements-releases/2021/05/17/fact-sheet-biden-administration-accelerates-efforts-to-create-jobs-making-american-buildings-more-affordable-cleaner-and-resilient/>
 - 1. For some commentary: <https://www.imt.org/what-the-white-houses-building-performance-standard-means-and-how-to-do-it-right>
 - ii. Accelerating Building Decarbonization: A White House Roundtable with Government and Industry: <https://betterbuildingssolutioncenter.energy.gov/webinars/accelerating-building-decarbonization-a-white-house-roundtable-government-industry>
- d. International

6. Data and Databases

- a. CBECS
 - i. 2018 CBECS Data Center Pilot results released. Concluded that a better data frame and cooperation from industry would be needed in order to publish data center info as separate estimates: https://www.eia.gov/consumption/commercial/data/2018/pdf/2018_CBECS_Data_Center_Pilot_Results.pdf
 - ii. 2018 CBECS data releases projected schedule:
 - 1. Building characteristics late summer 2021
 - 2. Consumption and expenditures summer 2022
- b. RECS
 - i. Upcoming 2020 RECS will collect data from all 50 states, and will target 18,000 completed cases: <https://www.eia.gov/todayinenergy/detail.php?id=45356>
- c. BPD
 - i. Will be adding emissions metrics to latest BPD release later this summer

7. Benchmarking Tools

- a. ENERGY STAR
 - i. U.S. EPA ENERGY STAR released updated guidance on COVID-19 impacts on ENERGY STAR scores, which includes eligibility based on shut down time: https://www.energystar.gov/buildings/benchmark/covid_19_guidance
- b. Other tools
 - i. Building EQ
 - ii. DOE Asset Score

8. ASHRAE Sessions of Interest

Tuesday, June 29, 7:00 AM - 8:30 AM Seminar 8

Energy Management Best Practices, Case Studies and Lessons Learned from Real-World Data Center Operation

Tuesday, June 29, 4:00 PM - 5:00 PM Panel 6

Walking the Talk: Achieving Verified Net Zero Goals and Why It Matters

Wednesday, June 30, 3:00 PM - 4:00 PM Conference Paper Session 1

Impact of COVID-19 on Energy Consumption and Grid-Interactive Efficient Buildings

(On Demand) Seminar 29

Applying Machine Learning and AI Data-Driven Controls: Case Studies, Challenges and Lessons Learned

(On Demand) Seminar 58

Occupant-Centric Performance Metrics